4th Grade Math and Science Expectations

2nd Quarter

Dear Parents,

In Mathematics, your child will work to answer the following questions through exploration of these ideas and concepts:

How can I model and represent comparison situations?

- Model and represent multiplication comparison situations.
- Solve word problems involving multiplicative comparisons.
- Know relative sizes of measurement units within a system *(including km, m, cm; kg, g; lb, oz; l, ml; hr, min, sec)* and convert measurements from a larger unit to a smaller unit, generating a conversion table.

How can I use place value and properties of operations to work with whole numbers?

- Use a variety of strategies to solve multi-step word problems with whole numbers involving the four operations.
- Solve problems involving area and perimeter.
- Add and subtract multi-digit whole numbers with a variety of base ten strategies and recording systems.
- Multiply and divide multi-digit numbers using a variety of strategies, explaining their calculations through illustrations, equations, arrays and/or area models.
- Recognize that in a multi-digit number, a digit in one place represents ten times what it represents in the place to its right.

How can I use equivalency to compare fractions?

- Recognize, create, and explain why fractions are equivalent using visual fraction models.
- Compare two fractions and record the comparisons using the symbols <, =, >.
- Use equivalent fractions to add two fractions with denominators of 10 and 100.

How can I use visual models to represent operation with fractions?

- Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
- Solve word problems involving addition and subtraction of fractions *(referring to the same whole and having like denominators)* using visual fraction models *(including line plots)* and equations.
- Multiply a fraction by a whole number and solve word problems involving multiplication of a fraction by a whole number using visual fraction models and equations.

How is the presence or absence of an attribute important when classifying two-dimensional figures?

- Recognize angles as geometric shapes formed when two rays share a common endpoint.
- Understand concepts of angle measurement and how an angle is measured with reference to a circle.
- Classify two-dimensional figures based on *attributes* (including parallel or perpendicular lines and angles).

In Science, your child will answer questions through exploration of ideas and concepts about *Earth's Systems – Processes that Shape the Earth*:

How can water, ice, wind, and vegetation change the land? What evidence do you have to support this explanation?

- Local, regional, and global patterns of rock formations reveal changes over time due to earth forces.
- The presence and location of certain fossil types indicate the order in which rock layers were formed.
- Rainfall helps to shape the land and affects the types of living things found in a region.
- Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around.
- Living things affect the physical characteristics of their regions.

What patterns of Earth's features can be determined with the use of maps?

- The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns.
- Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans.
- Major mountain chains form inside continents or near their edges.
- Maps can help located the different land and water features of Earth.

How can we reduce the impacts of natural hazards (processes) on humans?

- A variety of natural hazards result from natural processes like earthquakes, tsunamis, and volcanic eruptions.
- Humans cannot eliminate the hazards but can take steps to reduce their impact.
- Testing a solution involves investigating how well it performs under a range of likely conditions.